AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1-17. (Cancelled)

18. (New) A method for controlling a mechanism by a controller, comprising:

a) defining elementary functions and states of the mechanism according to instructions and signal vectors of sensors and actuators;

starting from a predefined reference state at a beginning of control activation, comparing an actual state of the mechanism transmitted by the sensors with a stored desired state for all elementary functions; and

detecting deviation in the mechanism from the desired state according to the instructions;

b) applying an updated elementary instruction for changing the state of the mechanism;

updating the desired state for the comparison and monitoring a time period until acknowledgment of an updated state responsive to both the updated instruction and stored permissible control time periods; and

c) identifying states of elementary functions with sensor signals and comparable information;

changing state through the elementary instructions;

assigning as a desired state signals from the sensors and the actuators; and

defining application instructions on logical-functional language level by assignment of elementary instructions.

19. (New) The method of Claim 18, further comprising:

defining a program module comprising an EF-controller for managing the states of the elementary functions as ordered actual desired states and as current actual states from the actuators and the sensors;

detecting change in the state of the mechanism through the sensors and assigning the state change to the elementary function as current actual state; and

comparing the current actual state with the desired state.

20.(New) The method of claim 19, wherein:

a) transferring, for a detected actual state of an elementary function that differs rom the desired state, a signal vector that describes the actual state to a program module comprising a not-desired state evaluator;

b) storing, in the not-desired state evaluator, reaction instructions for predetermined states of elementary functions that are responsive to the transferred state; and

c) producing error messages that indicate a name of the predetermined elementary function and a deviating signal.

21. (New) The method of claim 20, further comprising:

assigning and classifying, to an application instruction as an instruction set, the updated desired states of the sensors and actuators, control times for the updated desired state and reaction to deviations instructions, in each case, as reaction instructions for predetermined state messages;

deleting said instruction set and set prior to the start and after the execution, respectively;

applying a predetermined program module of the control comprising an instruction starter for organizing the system and releasing a subsequent instruction when instruction sequences after an execution message of a previous instruction are effected; and

organizing parallel instructions by temporary opening parallel execution sequences.

22. (New) The method of claim 21, further comprising:

a) providing a program module comprising a state monitor for integrating sensor signals and preselected controllable information into a continuous data word; and

maintaining assigned to the signal the address of a preselected elementary function in the EF-controller;

b) comparing each desired signal with the actual signal of the sensor message;

c) updating, by the module state monitor for a detected deviation of an actual signal, the actual signal in the EF-controller as the updated actual state of an elementary function;

d) entering, after the updating and transmission for evaluation in the EF-controller, the updated signal as an updated comparison state in the state monitor so that a comparison in the state monitor is made to the state evaluated last and each change in state is evaluated once;

e) comparing the desired and actual signals in the state monitor directionally; and

comparing, after an interruption for the evaluation of a deviation, at the signal succeeding the interruption place, so that each state change is detected and evaluated.

23. (New) The method of claim 22, further comprising:

a) entering and storing each recorded state change by the program module state monitor in an event-time protocol; and

b) detecting and filtering signal vibrations.

24.(New) The method of claim 23, further comprising:

a) providing a subdomain execution computer with the instruction starter, EF-controller, not-desired state evaluator and state monitor after transmission of an

elementary instruction to the instruction starter, said computer including no check for permissibility;

b) determining the execution of a received instruction by program modules assigned to the execution computer;

c) providing a subdomain instruction computer of the control blocking;

providing, in said instruction computer, lists for mutually exclusive states;

managing said lists on a logical-functional instruction level;

determining a proportion of functional blockings;

d) providing, in an application instruction in addition to changable elementary functions, information for setting or deleting preselected instructions blockings in the blocking list during or after the execution of the application instruction.

25. (New) The method of claim 24, wherein the execution computer and the instruction computer work decoupled in time by one program step, the method further comprising:

a) executing, in the executing part of the control comprising the execution computer, a received instruction;

checking, in an instruction-managing part of the control comprising the instruction computer, a subsequent instruction available to the executing part comprising the execution computer in an intermediate storage as instruction buffer;

b) updating, after provision of an instruction in the instruction buffer of the execution computer, the state in the instruction computer to the condition that will be after the execution of the instruction; and

checking the expected state of the then subsequent instruction for permissibility in the instruction computer during the execution of the preceding instruction; and

c) resetting the checked instruction from the buffer instruction if the expected state does not appear; and

updating the system to error state.

26. (New) The method of claim 25, wherein application instructions are prepared by steps comprising:

a) assigning, to the application, functionally definable instructions close to the process by language from the previously defined elementary instructions;

said elementary instructions being single, parallel or as a sequence;

b) defining, in the blocking list in the instruction computer, the blocking conditions on instruction level for the updating when activating the application instruction;

c) determining the reaction instructions for preselected deviations and determining error messages, and

d) filing the information in an instruction library; and

applying the instruction contents for application instructions.

27. (New) The method of claim 26, further comprising:

determining, from an application program for the operation of the mechanism, the sequence of defined application instructions, determining whether instructions are executed sequentially or in parallel.

28. (New) A method for the development of control software for a mechanism by a controller, comprising providing a dialogue system and further comprising:

a) requesting data of hierarchical function structure for the description of the controllable system;

b) defining each lower end of the hierarchical structure as an elementary function and defining each elementary function with an instruction states in a dialogue;

c) assigning, according to the elementary instructions, signals of sensors, signals of actuators, control times for transition between the states, and a reference state;

d) integrating partial systems being as elementary functions;

e) requiring, in the dialogue system, only the primary data listed on the structure and elementary functions for the description of the functionality of the mechanism.

29. (New) The method of claim 28, further comprising establishing and generating, by the dialogue-guided development system after entry of primary data:

a) a system elementary instruction storage;

b) the EF-controller; and

c) desired signal vector and the actual signal vector for the state monitor so that the mechanism is checkable for error-free signal definition in the reference state and controllable with defined elementary functions in a state of putting into operation.

30. (New) The method of claim 29, further comprising limiting changes of information on structure and elementary functions to an editing level.

31. (New) The method of claim 30, wherein the development system for the definition of application instructions in preselected dialogues performs the steps of:

a) offering elementary instructions of the system for assignment;

b) requesting blocking conditions for the blocking list;

graphically providing the data for the requested blockings through selection in the function structure;

providing formulations of blocking determinations;

c) determining reaction instructions for errors; and

d) storing, classifying and managing determinations in the instruction library.

32. (New) The method of Claim 31, further comprising:

a) locally limiting changes of elementary functions;

b) providing for the entering, extending or changing updated application instructions, blocking conditions in the blocking list or error reactions by reaction instructions;

c) updating definitions of application instructions and instruction conditions for the system without any reaction on already defined programs;

said definitions being differentiated by the assignment of status information.

33. (New)An apparatus for controlling a mechanism, comprising

a) a plurality of domains, each domains being configured dependent on features of predetermined events;

b) an execution computer;

a plurality of program modules, each module being configured for a predetermined time-critical events;

the computer comprising an instruction starter, an EF-controller, a not-desired state evaluator and a state monitor;

c) the execution computer including a processor for the time-critical events;

d) sensors and actuators, the execution computer communicating with controllable devices through the sensors, activation of the actuators, desired/actual

state comparison, reactions to deviations of the actual state from the desired state and execution of a received instruction;

e) a processor for management of application instructions in instruction libraries, management of blocking lists, execution of application programs by step-by-step transmission of instructions to the execution computer and external communication from the domain of a device comprising an instruction computer, and

f) a domain application computer.

34. (New) The apparatus of claim 33, further comprising:

a) a control hardware module having fixed instruction sets, the execution computer and the instruction computer being included in the control hardware module;

b) switching and indication devices for operation and communication; and

c) an interface for coupling with an external computer for entering control software.